

PANASONIC AG-HMC150

| b a s i c |



**HOW TO
shoot like
a PRO**

Is this thing on?

Easy-to-follow chart for successful sound

RULES
what's
allowed,
what's not

4 steps for
avoiding
overexposure

Your best shoot ever!
A pre-production checklist



CLASS CURRICULUM FREE

Northwest Community Television
763.533.8196 www.nwct.org

HELP! 7 common
problems
solved

on the cover

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SOUND

Everything you need to know about selecting sound inputs and setting and monitoring audio levels. Consult the easy-to-follow chart for successful setup—you'll never have to ask "Is this thing on?" again!



MICROPHONES

NWCT has a variety of microphones available for checkout—all of which are shown here. You'll know exactly which mic to use for your taping situation.



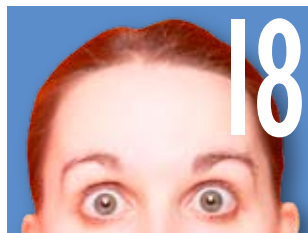
VIDEO IMAGE

Know how to determine your dominant light source and set the iris level, neutral density filter, and white balance. Zoos aren't the only place to find zebras!



BETTER SHOOTING

Wonder how the pros do it? All the basics and more are covered.



HELP!

Need to troubleshoot? Walk through seven typical problems and their solutions.

2 Policies

What's allowed, what's not.

3 Checkout form

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Easy to follow. Every conceivable setup.

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Portable camera policies

The purpose of these policies is to manage NWCT equipment in a fair and equitable manner. Follow these rules and you'll never have to worry about losing your membership privileges!

1. **Only certified members are permitted to operate equipment.**
2. Members must be on time for appointments. You must call if you are going to be more than 30 minutes late—if you are more than 60 minutes late, we will consider you a “no show” and give away your equipment.
3. Cameras may be checked out for up to 48 hours.
4. Members may schedule cameras only two weekends per month.
5. Members may reserve only one camera at a time per event. If a second camera is available at the time of checkout for the length of time desired, it can be checked out.
6. Equipment may be reserved up to two months in advance.
7. NWCT staff must confirm all equipment is in proper working order at the time of return. This takes approximately ten minutes—members must be present.
8. Members must be 18 years of age to sign out equipment. A parent or guardian must sign for equipment checked out to those under age 18.
9. Members are responsible for the equipment and will be liable for any loss or damage, normal wear and tear excepted.
10. All members using equipment and facilities will be expected to produce a program for cablecast within two months.



Producing programs for hire, advertisements, commercials, obscene or indecent programming, lotteries, or personal and family programs will not be tolerated.

If you need to cancel your appointment, please notify the studio manager at least 24 hours in advance; unforeseen emergencies and illnesses will be taken into consideration. Please do **not** rely on leaving a voicemail message. Talk to a studio manager whenever possible.

If cancellations are not made 24 hours in advance of your scheduled time, become excessive, or if you are more than 30 minutes late for your appointment, you may be subject to disciplinary action as follows: first offense, verbal warning; second offense, written warning; third offense, suspension.

**CALL
NOW!**

763.533.8196

Portable camera checkout form

NORTHWEST COMMUNITY TELEVISION PORTABLE CAMERA CHECKOUT FORM

Equipment inventory and cost

___ AG-HMC150 camcorder	\$3495.00
___ Tripod mount and screw	\$ 40.00
___ AC power, adaptor and cord	\$ 155.00
___ Lens cap	\$ 40.00
___ Operations manual	\$ 10.00
___ Portabrace camcorder case	\$ 219.00
___ Portabrace backpack	\$ 409.00
Camcorder accessories	
___ Panasonic VW-VBG6 batteries	\$ 227.00
___ 25' AC extension cord	\$ 10.00
___ XLR microphone cables	\$ 25.00
___ Headphones	\$ 10.00
___ SIMA SL-20LX camera light	\$ 49.50
Includes power adaptor	
Microphones	
___ Panasonic AG-MC200 shotgun mic	\$ 350.00
___ Electrovoice RE-10 handheld mic	\$ 197.00
___ Sony lavalier microphone, clip, case	\$ 195.00
___ Wireless mic # _____ (handheld/lav)	\$1200.00
___ Shotgun mic (\$500)/boom (\$800)	\$1300.00
___ Shure SM58 handheld mic	\$ 90.00
___ Manfrotto 755XB/501 tripod	\$ 524.00
___ Manfrotto tripod bag	\$ 87.00
___ Tripod dolly	\$ 245.00

Camera 1 2 3 4 5 6 7 8 9

___ **Lowel light kit # _____** \$1225.00
Includes 3 Omni lights, 3 barndoors and screens,
3-16' power cords, 3 Omni light stands, light case

___ Umbrella \$ 40.00

___ Tota-frame \$ 29.50

___ **Rifa light kit # _____** \$ 950.00
Includes 1 Rifa Lite 55 with diffuser panel and bag,
1 Pro-light with barndoor and gel frame, 2-16' power
cords, 2 light stands, light case

Extras

___ VCR w/AC power cord and case	\$2000.00
___ Accessory bag	\$ 25.00
___ Tri-RCA cable	\$ 15.00
___ Monitor	\$ 100.00
___ Mic stands (desktop/floor)	\$ 25.00
___ Power strip	\$ 7.00
___ MicroBeam 128 LED portable light	\$ 299.00

Adaptors

___ F-RCA > M-BNC	\$ 3.00
___ F-XLR > M-1/4"	___ F-BNC > M-RCA
	___ XLR barrel (M/F)

Other: _____

— VOLUNTEERS COMPLETE THE SHADED AREA — VOLUNTEERS COMPLETE THE SHADED AREA —

Name _____ Drivers license # _____

Address _____ City _____ Zip _____

Phone (H) _____ Cell _____

Project description

I assume full responsibility for this equipment and will be liable for damage or loss incurred while the equipment is checked out to me. I understand the equipment must be returned at the agreed upon time and the equipment cannot be used for commercial, money-making or personal use. I may be subject to suspension of community television privileges or assessed a rental charge if the preceding rules are not followed.

Signature _____

Checkout date/time: _____

Staff initials: _____

Check in date/time: _____

Call 763.533.8196 x293 if you're going to be late.
Su 12:30-6:30pm | M-Th 8:30am-11pm | F-Sa 8:30am-5pm

Staff initials: _____

White copy: Studio

White copy: CTV Manager

Pink copy: Producer

Power DC AND AC

DC POWER

Attaching the battery

To attach the battery, ❶ lift up the viewfinder, ❷ place the battery in the battery compartment toward the top, and ❸ push down—the battery will click into place.



Removing the battery

To remove the battery, **FIRST TURN OFF THE CAMERA.** Then lift up the viewfinder, push in the battery release button (closeup pictured above), and pull up on the battery.



AC POWER

To use AC power, ❶ plug the AC cable into the AC adaptor. ❷ Plug the DC cable into the AC adaptor and ❸ attach the flat end of the DC adaptor to the back of the camera in the same way the battery is attached.



Battery life

The battery should last approximately 200–300 minutes. Remaining battery life can be read on the LCD monitor.



Recharging batteries

The battery can be recharged using the AC power unit provided with the camera. The DC cable must be disconnected in order for the battery to charge.

Fully recharging the battery takes approximately 300 minutes.



Sound IS THIS THING ON?

Selecting sound inputs

Two sources of audio can be recorded to the camera simultaneously. Sound can be gathered from the camera's internal microphone, an external microphone, a line level source such as an audio mixing board or CD player, or any combination of two of those sources.

Routing audio signals is controlled by two switches behind the LCD monitor and two switches on the front of the camera.



Two switches behind LCD panel



Two switches on front of camera

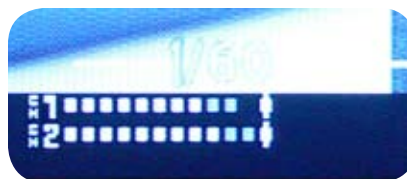
Setting the audio level

To set an appropriate audio level, use the **AUDIO** dials on the side of the camera. The **CH1** dial controls the level for the source selected with the **CH1 SELECT** switch and the **CH2** dial controls the level for the source selected with the **CH2 SELECT** switch.



Monitoring the audio level

Use the audio meter on the bottom of the LCD monitor to view the audio levels. Adjust the **AUDIO** dials so that the loudest sounds register just below the white hash marks. If the audio is bouncing above the white hash marks or you see the red slash on the meters, adjust the **AUDIO** dials to lower the input level.



To monitor audio quality, plug headphones into the headphone jack on the back of the camera. You can control the headphone volume by pushing the **- AUDIO MON/ADV +** buttons. NOTE: Changing your headphone volume will not change the audio levels being recorded. Always use the audio meter to judge appropriate levels.



Easy-to-follow audio setup chart on next page

Audio setup chart

Audio source	INPUT jacks and INPUT settings	CH 1 SELECT and CH 2 SELECT settings	Audio records on
Internal microphone	N/A	CH 1 SELECT: INT(L) CH 2 SELECT: INT(R) 	CH 1: Built in mic CH 2: Built in mic
External microphone	INPUT 2 jack INPUT 2: MIC 	CH 1 SELECT: INPUT 2 CH 2 SELECT: INPUT 2 	CH 1: External mic CH 2: External mic
External line level source	INPUT 2 jack INPUT 2: LINE 	CH 1 SELECT: INPUT 2 CH 2 SELECT: INPUT 2 	CH 1: Line level source CH 2: Line level source
Two external sources	INPUT 1 and INPUT 2 jacks INPUT 1: LINE or MIC INPUT 2: LINE or MIC 	CH 1 SELECT: INPUT 1 CH 2 SELECT: INPUT 2 	CH 1: Input 1 CH 2: Input 2
One external source and built in microphone on camera	INPUT 2 jack INPUT 2: LINE or MIC 	CH 1 SELECT: INPUT 2 CH 2 SELECT: INT(R) 	CH 1: Input 2 CH 2: Built in mic

Microphone selection

Northwest Community Television has several different types of mics available. Desktop and floor mic stands are available for checkout.

STANDARD ISSUE

These three microphones come standard with every portable camera.

Electro-Voice RE10 handheld

Unidirectional, excellent for music or interviews, slightly better bass response than 635A

Sony ECM 44 or Sony ECM 30 lavalier or lapel

Directional, excellent for interviews, clips directly to clothing, small enough to easily hide on location

Panasonic AG-MC200 shotgun (see below)



OTHER MICS

Electro-Voice 635A handheld

Omnidirectional, good for inexperienced interviewers, fine for music and ambient sound gathering



Shure SM58 handheld

Unidirectional vocal microphone



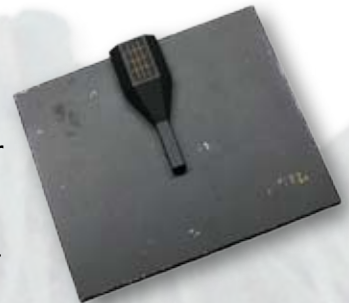
Sennheiser wireless lavalier and handheld

Variable frequency UHF receiver works with either lavalier or handheld transmitter, range of 50+ feet, good for productions requiring freedom of movement



Realistic PZM

(Pressure Zone Mic)
Surface mount mic, omnidirectional, very low profile, excellent for pianos, drums, large vocal or instrumental groups, or stage performances

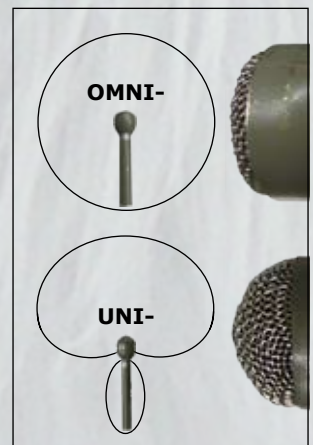


Shotgun

Directional, great for capturing sound at a distance, also available with boom pole and Zeppelin



PICK UP PATTERNS



Video image 4 STEPS FOR AVOIDING OVEREXPOSURE

FIRST THINGS FIRST

Determining the dominant light source

Before shooting, determine whether most of the light in the scene is coming from the sun or from artificial lights.

For best color results, try to reduce the light coming from the less dominant source. You can do this by covering windows (if your primary light source is artificial) or by turning off incandescent and fluorescent lights and placing your subject close to a window (if your primary light source is sunlight).

It's also possible to match artificial lights to sunlight by covering the lights with blue color conversion gels which can be found in the light kits.

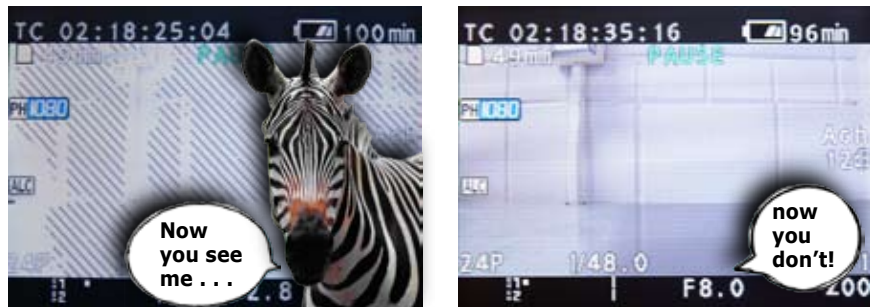
Matching the light using one of these methods will provide better color for your scene.

2

Setting an appropriate iris

The iris controls the amount of light entering the camera which determines how bright the image will be (**exposure** of the image).

To set the iris appropriately, you must monitor the **zebra stripes** in the LCD monitor of the camera. Zebra stripes appear on areas of the image that are overexposed. In those areas, no detail is recorded because the light is too intense. A picture is properly exposed when there are no, or very few, zebra striped areas in the image.



There may be times when you want to overexpose an image, if you are shooting into a strong backlight, for instance, but generally the rule applies: minimize the zebra stripes.

IMPORTANT: Do not rely on how the image "looks" in the LCD monitor to determine correct exposure because the LCD monitor shows brightness inaccurately. Always use zebra stripes.

To set the iris:

Push the ZEBRA button until ZEBRA2 100% appears in the LCD monitor.



To use the AUTO IRIS mode:

Set the AUTO MANUAL switch to AUTO. AUTO IRIS appears in the LCD monitor. The camera will adjust the exposure automatically.



To use the MANUAL IRIS mode:

Set the AUTO MANUAL switch to MANUAL. MANUAL IRIS appears in the LCD monitor. Rotate the iris dial until the image is properly exposed. Adjust the dial and set a new exposure every time the shot changes.



3

Selecting the right neutral density filter

Neutral density filters allow the camera to operate correctly outdoors in sunlight. A neutral density filter does for the camera what sunglasses do for your eyes—it reduces the amount of light that can pass through without changing the color of that light.

Once the iris is set to auto or manual, the camera will tell you if a neutral density filter is needed with an indicator in the middle of the LCD monitor. The indicator will also tell you which neutral density filter you should use.

If indoors and the scene is too dark even with the iris setting on **OPEN**, turn OFF the ND filter.

NOTE: If the iris is set to MANUAL and the ND filter is changed, a readjustment of the iris may be necessary.



ND FILTER SETTINGS

- 1/64** cuts light intensity by 1/64
- 1/16** cuts light intensity by 1/16
- 1/4** cuts light intensity by 1/4
- OFF** ND filter is not used



4

Setting a white balance

White balancing the camera guarantees that white and all other colors record correctly. Though the human eye cannot perceive it, white light coming from the sun is different than white light coming from a light bulb.

You should white balance your camera before recording, but especially when lighting conditions change (moving from sunlight to artificial light or vice versa).

White balancing the camera

1. If the **AUTO MANUAL** switch is set to **AUTO**, the camera uses **ATW** (Auto Tracking White) to white balance.
2. If the **AUTO MANUAL** switch is set to **MANUAL**, set the **WHITE BAL** switch to **B** or **A**.
3. Point the camera at a white object set in your lighting and zoom in so that it fills as much of the frame as possible.
4. Press the **AWB** button on the front of the camera. Release when **AWB Bch** (or **Ach**) **ACTIVE** appears in the LCD monitor. **AWB Bch** (or **Ach**) **OK** appears when the white balance is complete.
5. Hold the **AWB** button to black balance the camera. **ABB ACTIVE** flashes while black balancing; **ABB OK** appears when complete. The LCD monitor will go black during this process.

If the **WHITE BAL** switch is set to **PRST**, press the **AWB** button to switch between **P3.2K** (halogen light) and **P5.6K** (outdoors).



GAIN

If you followed the setup procedure and your video looks dark, we recommend adding lights first. If after doing this the video still looks dark, you can move the **GAIN** switch from **L** (low) to **M** (medium) or **H** (high). Only do this as a last measure because as gain is increased, so is the graininess of the video.



SCENE FILES

- F1: Normal**
- F2: FLUO.**
Indoors under cool fluorescent lights
- F3: SPARK**
Fuller variations of resolution, coloring and contrast
- F4: B-STR**
Contrast of dark parts broadened (exp. sunsets)
- F5: CINE V**
Contrast emphasized in movielike scenes
- F6: CINE D**
Dynamic range emphasized in movie-like scenes

Shooting better video

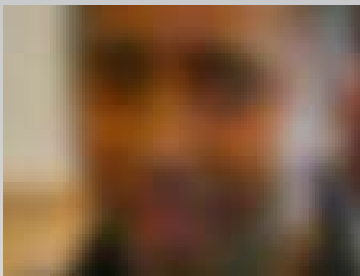
HOW TO SHOOT LIKE A PRO

Critical focus

If you're shooting with manual focus, it's important that you get a critical focus (also called a calibrated zoom) of your subject every time you get a new shot.

Here's how to perform a critical focus:

- 1 Zoom in all the way on your subject,



- 2 focus, and then



- 3 zoom out to the framing you want.



Doing this will ensure your subject stays in focus, regardless of how far out you zoom.



Head room and look space

When shooting people, it's best to follow two simple guidelines in framing. First, allow for a bit of space between the top of the frame and the subject's head. Allowing too little or too much space makes the audience feel anxious. Second, allow more room on the side of the frame in the direction the subject is looking. If you don't, the audience will subconsciously experience claustrophobia, feeling that the subject is running out of room.



Sequencing

In general, it will be very hard to edit your video well if you shoot your subject the same way all the time. If you edit together two pieces of video that are too similar, you'll create a "jump cut." Your subject will change position in the scene instantly, appearing to have jumped there (example above). Jump cuts are very distracting to a viewer and should be avoided. It's much better to arrange your shots in a logical sequence. The most popular sequence consists of a wide shot, medium shot, close-up, and cutaway. Let's take a look at this in a typical interview setup on the next page.

TYPICAL INTERVIEW SETUP SHOOTING BETTER VIDEO



We'll begin with a wide shot which helps the viewer understand where this interview is taking place. Wide shots are often used to establish location and are sometimes referred to as "establishing shots."



Next, we'll get closer and show the interviewer (on the left) and the subject (on the right) together at the table. In our example, this would be a good shot for the interviewer to deliver her first question.



Third, we'll get a close-up of our subject. This particular shot is actually a "medium close-up" and could also be called a "head and shoulders" shot.

The bulk of action for our interview will take place in the close-up as the subject answers the interviewer's questions.



You may wish to cut out sections of the subject's response that aren't relevant or are filled with "ums" and "ahs." If you edit together two close-ups of the subject, the result will be a jump cut. To avoid that, we'll shoot cutaways.

A cutaway is any shot used to cover jump cut edits in primary shots or add a new dimension to a video story. In our example, we could show the subject's hands or the interviewer listening to keep the video flowing smoothly.



The 180° Rule

If you're shooting a scene with two subjects, imagine there is a line connecting them. That line is called the "axis of action." Don't shoot on both sides of the axis. Keep all your shots on the same side.

In our example, the axis of action is between the interviewer and the subject.



Notice that in every shot, regardless of framing or angle, the interviewer is always on the left and the subject is always on the right. If we took a shot or two from the other side of the table and edited it together, the interviewer would be on the right and the subject on the left in those shots, and the viewer would be very confused.

The 30° Rule

Every time you change shots in a sequence, it's best to change your shooting angle by at least 30°. Notice in our example, each shot is not only framed differently, but also shot at a different angle. Changing your shooting angle helps eliminate jump cuts.



SPECIALTY SHOOTING SHOOTING BETTER VIDEO

Use high and low angles

A high angle shot can make your subject appear weak and vulnerable or it can simply add a new dimension to your scene. Conversely, a low angle shot makes your subject appear powerful and "larger than life."



Create depth in your shots

A television screen is a two-dimensional piece of glass so extra effort needs to be made to create depth for your audience. Try shooting your subject with something in the foreground to give the viewer depth cues. Shoot buildings from the corner instead of head-on which can make a building look flat.



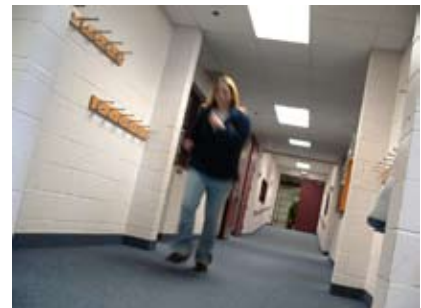
Try a rack focus

"Racking focus" means shifting focus from one object in a scene to another. It's easy to rack focus when the camera is zoomed in all the way because the camera's depth of field, the area where subjects will be in sharp focus, is narrow.



Use Dutch angles

To use a Dutch angle, also called a canted angle, tilt the camera so that the horizon or floor is diagonal instead of flat. This creates tension in a scene and works well for fast paced action productions with a lot of quick editing.



Use close-ups

Television is called "the close-up medium" because a TV can't show as much detail as a movie screen. As a result, television videographers shoot more close-ups than movie cinematographers. Use this to your advantage! It's easier to convey emotion in a close-up because the face is seen in greater detail. Close-ups are also great for revealing details the audience may miss in your wide shots. Don't be afraid to get in there and get personal!



SDHC cards EVERYTHING YOU NEED TO KNOW

CHOOSING THE RIGHT CARD

There are two things to keep in mind when purchasing SDHC (Secure Digital High Capacity) cards: the **Class** (speed) of the card and the **size** of the card.

SPEED CLASS

SDHC cards are broken down into Class 2, Class 4, Class 6 and Class 10 cards. Class 2 cards offer a minimum sustained data rate of 2 megabytes per second (MBps), Class 4 4MBps, Class 6 6MBps and Class 10 10MBps. Although Class 4 is the minimum speed class required to record, **Class 6** (or higher) is recommended for high definition (HD) camcorders.

CLASS	APPLICATIONS
②	SD video recording
④⑥	HD ~ Full HD video recording
⑩	Full HD video recording HD still consecutive recording

CARD SIZE/CAPACITY

SDHC cards come in a variety of sizes. The most commonly used sizes are listed below. The amount of time that can be recorded on a card is dependent not only on the size of the card, but the record format selected (see page 6).

CARD SIZE	RECORD FORMAT			
Capacity	PH (Highest)	HA (High)	HG (Standard)	HE (Lowest)
4G	21 min	30 min	40 min	90 min
8G	45 min	60 min	80 min	180 min
16G	90 min	120 min	160 min	360 min
32G	180 min	240 min	320 min	720 min

INSERTING THE CARD

To insert the card into the camera, open the card slot cover located under the viewfinder. Press the **OPEN** button on the cover's right side to flip down the cover. Gently insert the card into its slot, then close the cover.



CARD CHECKLIST

1. **HC** (high capacity) appears after SD
2. **6** or **10** (class number inside big C)
3. **#GB** (card capacity)

NOTE: Micro SD cards with adaptors do not work.

NOT ACTUAL SIZE



Record inhibit switch

Before recording, check that the record inhibit switch is set to the unlocked position. If the switch is set to the LOCK position, recording on the SD card will be impossible.

1080
24P
i60
720
30

BY THE LETTER
(AND NUMBER!)

Let's say I'm re-
cording in the **PH**
1080/60i format—

PH is the highest
record quality I can
select.
HA is high,
HG is standard, and
HE is lowest.

1080 is the height
of my image mea-
sured in pixels. The
largest HD screen
is 1080 pixels high.
At 1920 pixels wide,
the image I see
on screen displays
2,073,600 pixels!

720 is the smallest
HD screen's height
(720 x 1280). The
more pixels, the
sharper the image!

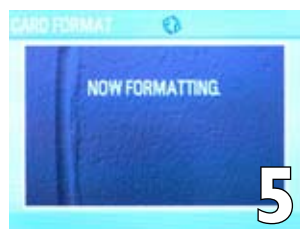
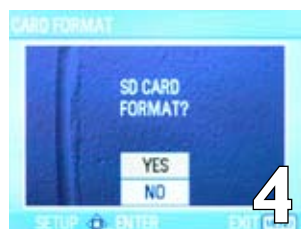
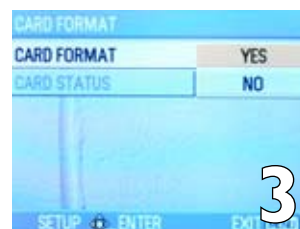
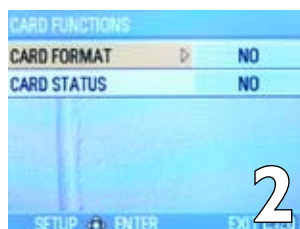
60 is the number of
frames recorded per
second (fps). Other
choices include:
30 fps
24 fps

i is "interlaced"
scanning—every
other line of video
is taken from two
frames to create
one frame.
P "Progressive"
scanning uses every
single line from one
frame of video.

FORMATTING THE CARD

To format the card in the camera, press the **MENU** button, then, using the operation lever, scroll down and select **CARD FUNCTIONS** (screen 2 of 3). In the submenu, select **CARD FORMAT**, then select **YES**. Select **YES** again. It will take a moment or two, but then the card will be formatted and ready to go!

NOTE: Formatting does delete **everything** previously recorded on the card.

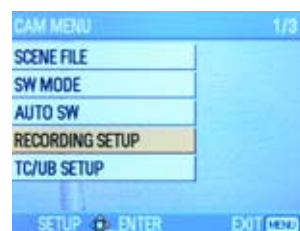


CHOOSING A RECORD FORMAT

There are four high definition (HD) record formats—PH, HA, HG and HE. Although each format offers higher quality than standard definition (SD), each has its own setting(s) for quality/performance. The higher the quality, the larger the file size.

Note: Though you are shooting in HD, NWCT does **not** cablecast in HD. While you can edit in HD and have HD movie files, you will most likely need an external hard drive to provide adequate space. **Any** of the formats are acceptable for cablecast.

To choose the best record format for your situation, press the **MENU** button, then select **RECORDING SETUP**. Make your selection under **REC FORMAT**.



RECORD FORMAT (Quality)	RESOLUTION	USE
PH (Highest)	1080/60i	TV programming
	1080/30P	TV programming
	1080/24P	Film
	720/60P	Slow motion (editing required)
	720/30P	TV programming
	720/24P	Film
HA (High)	1080/60i	TV programming
HG (Standard)	1080/60i	TV programming
HE (Lowest)	1080/60i	TV programming

RECORDING

Once you select a record format, all you need to do is press the red record button—one is located with the power switch on the back of the camera, while the other is toward the front of the camera on the handle. To use the record button on the handle, move the REC selector switch on the side of the handle from OFF to **ON**.



NOTE: If you do **not** select a record format, the camera will default to the last user's record settings.

PLAYING CLIPS

To view clips on the camera, press the **MODE** button (located to the left of the battery compartment) to switch from **CAM** (camera) to **PB** (playback).

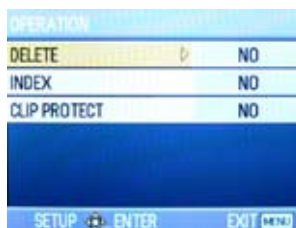
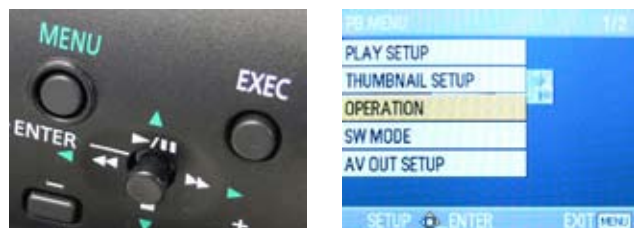


All clips recorded on the card display in the LCD monitor. Use the operation lever to navigate to the clip to view—push in the lever to play the clip.



DELETING CLIPS

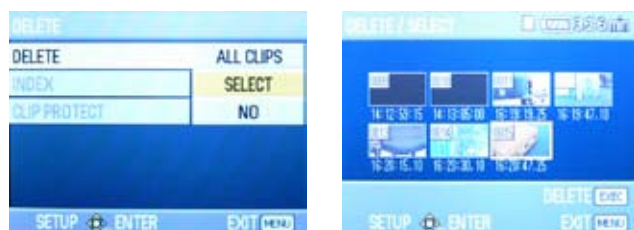
After viewing your recorded footage, you can delete any clips you don't want to use. While still in PB mode, press the **MENU** button. Scroll down and select **OPERATION** in the PB menu. Select **DELETE**.



At this point, you can delete all unprotected clips on the card or selected clips only. If you delete **ALL CLIPS**, select **YES** when prompted by "**ALL CLIPS DELETE?**".



If you delete **SELECT** clips, all recorded clips display on the LCD monitor. After pressing the **EXECUTE** button, **SELECT THE CLIP TO BE DELETED** appears and all the clips display again. Select the clips to be deleted using the operation lever—an **orange border** appears inside the yellow when properly selected. Press **EXECUTE** again, and then select **YES** when prompted. When you're done deleting clips, press the **MENU** button to exit.



Safety zone setup

While you only shoot in 16:9 for HD, you can set up an overlay for your LCD monitor to ensure what you record can be seen on a standard 4:3 TV.

In **CAM** mode, press the **MENU** button. Using the operation lever, move to **DISPLAY SETUP** (screen 2/3); pull the lever toward you to select.



Go to **SAFETY ZONE** next. The selections are 90%, 4:3, and OFF—**90%** sets up a safety overlay for 90% of the TVs used, **4:3** for a 4:3 TV, and **OFF** if you aren't concerned viewers can see your full picture.



Default menu settings

To access the various camera menus, press the **MENU** button. Moving the operation lever up and down lets you scroll through all the options. To access a menu, pull the operation lever toward you; to select an item, push in the lever.



Below is a list of all the default menu options in **CAM** mode with scene file **F1** selected. If you're having a problem that isn't solved by the instructions in this booklet, go through the menu settings and make sure they are set correctly.

SCENE FILE: F1		
	CARD READ/WRITE	NO
	LOAD/SAVE/INIT	NO
	SYNCHRO SCAN	1/48.0 (grayed out)
	DETAIL LEVEL	0
	V DETAIL LEVEL	0
	DETAIL CORING	0
	CHROMA LEVEL	0
	CHROMA PHASE	0
	COLOR TEMP Ach	0
	COLOR TEMP Bch	0
	MASTER PED	0
	A.IRIS LEVEL	0
	DRS	OFF
	GAMMA	HD NORM
	KNEE	AUTO
	MATRIX	NORM1
	SKIN TONE DTL	OFF
	NAME EDIT	NO
SW MODE		
	MID GAIN	6dB
	HIGH GAIN	12dB
	ATW	OFF
	HANDLE ZOOM	L/OFF/H
	IRIS DIAL	DOWN OPEN
	USER1	WHITEFADE
	USER2	BACKLIGHT
	USER3	INDEX
	FOCUS ASSIST	EXPANDED
	WFM	WAVE
	LCD	LCD BL
AUTO SW		
	A.IRIS	ON
	AGC	6dB
	ATW	ON
	AF	ON
RECORDING SETUP		
	REC FORMAT	PH 1080/60i
	PREREC MODE	OFF
	TIME STAMP	OFF
	MIC ALC	ON
	MIC GAIN1	-50dB
	MIC GAIN2	-50dB
TC/UB SETUP		
	TC MODE	DF
	TCG	REC RUN
	TC PRESET	NO
	UB PRESET	NO
	EXT TC LINK	NO

AV OUT SETUP		
	HDMI OUT SEL	FIX
	CMPNT OUT SEL	AUTO
	DOWNCON MODE	LETTER BOX
	VIDEO SETUP	7.5%A
	AUDIO OUT	CH1/CH2
	HP MODE	RECORDING
DISPLAY SETUP		
	ZEBRA DETECT1	80%
	ZEBRA DETECT2	100%
	MARKER	ON
	SAFETY ZONE	90%
	REC COUNTER	TOTAL
	VIDEO OUT OSD	OFF
	DATE/TIME	OFF
	LEVEL METER	ON
	ZOOM & FOCUS	NUMBER
	CARD & BATTERY	ON
	OTHER DISPLAY	PARTIAL
	LCD BACKLIGHT	NORMAL
	LCD SET	NO
	EVF SET	NO
	SELF SHOOT	MIRROR
	EVF COLOR	ON
CARD FUNCTIONS		
	CARD FORMAT	NO
	CARD STATUS	NO
USER FILE		
	CARD READ/WRITE	NO
	LOAD/SAVE/INIT	NO
META DATA		
	CARD READ	NO
	RECORD	OFF
	USER CLIP NAME	TYPE1
	CLIP COUNT RESET	NO
	META DATA PROP	NO
	META INITIAL SET	NO
OTHER FUNCTIONS		
	IR REMOTE	OFF
	REC LAMP	OFF
	BEEP SOUND	OFF
	CLOCK SET	NO
	TIME ZONE	+00:00
	POWER SAVE	OFF
	SYSTEM INFO	NO
	MENU INIT	NO
	OPERATION TIME	(grayed out)

Quick setup checklist for recording

- ☐ Set up camera and equipment
- ☐ Light
- ☐ Power on camera
- ☐ Hook up and set audio levels
(No audio meters? Press the DISP/MODE CHK button.)
- ☐ Adjust iris level *
- ☐ Set ND filter *
- ☐ White balance *
- ☐ Set gain *
- ☐ Select scene file *
- ☐ Insert SD card
- ☐ Format SD card (do **not** do if keeping what's on your card!)
- ☐ Choose record format
- ☐ Set up safety zone
- ☐ Record

* THE FULL AUTO

Just want to power up and shoot? Here are the settings you'll need in order for the camera to automatically make adjustments.

- ☐ Set SCENE FILE dial to F1 (normal lighting conditions)
- ☐ Set FOCUS switch to A (Auto)
- ☐ Set ND FILTER to OFF (for shooting indoors)
- ☐ Set GAIN switch to L (Low)
- ☐ Set AUTO/MANUAL switch to AUTO (iris and white balance)
- ☐ Set AUDIO CH1 SELECT to INT(L) and CH2 SELECT to INT(R) to use the camera's internal mics

NOTE: You will still need to set audio levels—your audio levels are **not** automatically adjusted by the camera.

Scene file settings

On the previous page, scene file F1 is selected—there are a total of six scene file presets. Scene files can be “dialed” in based on your recording conditions. Below is a chart showing the factory presets for each scene file.

	F1	F2	F3	F4	F5	F6
	Normal	FLUO. For recording under cool fluorescent lamps	SPARK For brighter images with richer colors (receptions, dinners, etc.)	B-STR (Black stretch) For scenes with dark and bright areas together (sunsets, theatre)	CINE V For prioritizing contrast in movie-like scenes	CINE D For prioritizing dynamic range in movie-like scenes
MENU						
SYNCRO SCAN	1/48.0	1/48.0	1/48.0	1/48.0	180.0d	180.0d
DETAIL LEVEL	0	0	+3	0	0	0
V DETAIL LEVEL	0	0	0	0	0	0
DETAIL CORING	0	0	+1	0	0	0
CHROMA LEVEL	0	0	+4	+3	-2	0
CHROMA PHASE	0	0	0	0	0	0
COLOR TEMP Ach	0	0	0	0	0	0
COLOR TEMP Bch	0	0	0	0	0	0
MASTER PED	0	0	-2	0	-2	-2
A.IRIS LEVEL	0	0	0	0	-7	-9
DRS	OFF	OFF	OFF	OFF	OFF	OFF
GAMMA	HD NORM	HD NORM	B.PRESS	HIGH	CINELIKE V	CINELIKE D
KNEE	AUTO	AUTO	AUTO	AUTO	AUTO	AUTO
MATRIX	NORM1	FLUO	NORM1	NORM1	CINE-LIKE	CINE-LIKE
SKIN TONE DTL	OFF	OFF	OFF	OFF	OFF	OFF

NOTE: Recording format (**REC FORMAT** menu item under **RECORDING SETUP**) is **not** changed even when **F5: CINE V** or **F6: CINE D** scene files are selected.

Help! TROUBLESHOOTING SOLUTIONS TO COMMON PROBLEMS

THE PROBLEM

The LCD monitor displays a blue screen.

THE SOLUTION

Press the **MODE** button until the lamp for **CAM** (camera) is lit (**PB** is playback).

PUSH HERE



THE PROBLEM

The camera won't zoom.

THE SOLUTION

Set the **ZOOM** switch on the side of the camera to **SERVO**, unless you're using the zoom **ring**, then set the switch to **MANUAL**.

PUSH HERE



If you're using the **handle** zoom, set the **ZOOM** switch to **SERVO** and the **HANDLE ZOOM** switch to **1** or **3**—two menu options designate **2** as **OFF** (**SW MODE** menu).



HANDLE ZOOM	L/OFF/H
IRIS DIAL	L/M/H
	L/OFF/M

THE PROBLEM

The camera won't manually focus.

THE SOLUTION

1. Set the **AUTO MANUAL** switch to **MANUAL**.
2. Set the **RING** switch to **FOCUS**.
3. Set the **FOCUS** switch to **M** (manual).

PUSH HERE



THE PROBLEM

The video is too dark.

THE SOLUTION

Set the **ND FILTER** switch to **OFF**.

PUSH HERE



The video is still too dark.

Set the **AUTO MANUAL** switch to **AUTO**.



HELP! CONTINUED

THE PROBLEM

The video is STILL dark . . .

THE SOLUTION

Press the **SHUTTER** button until **SHUTTER OFF** displays in the LCD monitor.

PUSH HERE



IT'S STILL TOO DARK!

If you're recording in low light, set the **GAIN** switch to **M** (medium) or **H** (high).



THE PROBLEM

The video is too bright.

THE SOLUTION

If you're outdoors, set the **ND FILTER** switch to either **1/4**, **1/16** or **1/64**.

PUSH HERE



The video's still too bright . . .

Set the **AUTO MANUAL** switch to **AUTO**.



My video is still too bright.

Set the **GAIN** switch to **L** (low).



THE PROBLEM

The video looks choppy.

THE SOLUTION

Rotate the **SCENE FILE** dial to **F1**.

PUSH HERE



It's still choppy!

Press the **SHUTTER** button until **SHUTTER OFF** appears in the LCD monitor.



THE PROBLEM

I've followed all the instructions in the Sound section, but I still get nothing from my microphone.

THE SOLUTION

The microphone may require phantom power to operate—set the **MIC POWER +48V** switch to **ON** for the microphone input.

PUSH HERE





Pre-production checklist

Follow these pre-production tips and your taping will go more smoothly—you'll rest easy knowing you're prepared for just about anything! Doublecheck and confirm everything a few days before the shoot.

Obtain taping permission

- Call as soon as possible to find out if you need permission to tape the event and/or at the location.

Inspect the taping location

- Inspect the site before your taping date, preferably at the same time of day you will be shooting. Check for power outlets, lighting, and special audio needs.
- Confirm arrival procedures, setup time and location, loading area, facility contact person, etc.

Lighting

- Design a lighting plan, taking into consideration the location of the sun and shadows during the shoot. Ask if windows in the background can be covered.
- Plan where the lighting will go based on space available and power needed for your taping conditions.

Audio

- Decide how many and what type of microphones you will need.
- If there will be a lot of background noise, unidirectional mics (lavalier, RE-10) work best.
- If you are using a wireless mic, pretest it for possible interference from electrical sources or competing transmitters.
- Note the type of connection if you are taking a feed out of a sound board.
- Ask your talent if they will need a line monitor or program audio feed.

Make a camera shot sheet

- Bring a list of transition and cover shots so that you don't forget a crucial shot.
- Shoot more than you think you need.

Things to bring

- Camera equipment
- SDHC cards
- Batteries
- Power cords, extra audio gear, gaffers tape
- Lighting
- Tripod dolly
- Talent and location releases, parking permits, admittance waivers, etc.
- Garbage bag (for picking up after yourself)



TO DO
TODAY!

Talent release form

Date _____

Program _____

Producer _____

In consideration of your plan to produce the above captioned program and as an inducement to permit me personally to appear on the cablecast of the program, I hereby consent to the use of my name, likeness, pictures and/or voice by you and your licensees for cablecasting, direct exhibition, and subsidiary purposes. Such uses will not be made as will constitute a direct endorsement by me of any product or service.

I hereby idemnify you and your licensees respecting my claim or action against you, your licensees or your officers and agents, arising out of my acts or statements out of the program.

Signature _____

Print name _____

Witness _____

If minor, guardian _____

Talent release form

Date _____

Program _____

Producer _____

In consideration of your plan to produce the above captioned program and as an inducement to permit me personally to appear on the cablecast of the program, I hereby consent to the use of my name, likeness, pictures and/or voice by you and your licensees for cablecasting, direct exhibition, and subsidiary purposes. Such uses will not be made as will constitute a direct endorsement by me of any product or service.

I hereby idemnify you and your licensees respecting my claim or action against you, your licensees or your officers and agents, arising out of my acts or statements out of the program.

Signature _____

Print name _____

Witness _____

If minor, guardian _____



MAKE A

Stunt